

Remarks

REJECTION UNDER 35 USC 112, ¶1

In the February 10, 2004 Office Action, the Examiner rejected claim 36 under 35 USC 112, first paragraph, for failure to comply with the written description requirement. In particular, the Examiner stated that the limitation "upper and lower ends of said heat regulating element are open to said substantially cylindrical heat regulation void from said lower spindle area to said upper spindle area" is not supported by the specification. The Examiner asserts that ring support 51 (shown in FIG. 2) in conjunction with disclosed gas intake port 53 and flow path 59 makes it unclear as to whether there is an open lower end to heat regulating element 50. The Applicants respectfully submit that the open nature of the heat regulation void that is made possible by the configuration of the heat regulating element is both clear and adequately described. Original specification page 11, lines 22 through 27 expressly contemplates such open arrangement when it speaks of gaps through which gas can flow. In addition, original specification page 11, lines 13 through 15 describes how frame 52 (shown in FIG. 4) contains a cylindrical cut-out through its body to accommodate the spiral fluid conduit 58. Moreover, original FIG. 2 shows heat regulating element 50 having upper and lower ends that coincide with the ends depicted in FIG. 4. The introduction of the claim recitation of upper and lower ends that are open to the heat regulation void such that a continuous exhaust gas flowpath exists through the heat regulating element 50 merely puts into text form that which was present in the disclosure all along. The written description requirement of 35 USC 112, first paragraph is met when the specification (including drawings) contains sufficient detail to convey to a person of ordinary skill in the art that the inventor had possession of the claimed invention at the time the application was filed. *Eiselstein v. Frank*, 34 USPQ2d 1467 (Fed. Cir. 1995). Accordingly, because the present application as originally filed points to the claimed open configuration, the Applicants respectfully submit that claim 36 satisfies the 35 USC 112, first paragraph written description requirement.

REJECTION UNDER 35 USC 103

In the February 10, 2004 Office Action, claims 36 and 44 through 46 were rejected under 35 USC 103 as being obvious over Sugimoto et al. (US 5,762,709, hereinafter the '709 patent) in view of Kimura (US 5,578,127, hereinafter the '127 patent), while claims 39 through 42 were rejected under 35 USC 103 as being obvious over the '709 patent in view of the '127 patent and US Patent 6,107,608 to Hayes.

The heat regulating element **50** of the claimed device, as shown in original FIGS. 2 and 4, is made from a fluid conduit **58** that is disposed within a box-like frame **52**. The spindle **24** used to rotate the wafer support **70** passes through the center of the heat regulating element **50** such that a heat regulation void **55** is formed between the spindle **24** and the fluid conduit **58**. The heat regulating element **50** functions as a heat exchanger between the exhaust gas that flows past the spindle **24** along the heat regulation void **55** and the fluid that flows through the conduit **58**.

The device disclosed in the '709 patent includes a spin coating apparatus with an air flow adjusting unit **50**, and a void about a rotary spindle **1a** that together with conduit **30** defines an exhaust gas flow path to supply temperature-controlled air flow to lower surfaces of substrates being coated by the apparatus, all as shown in FIG. 2 of the '709 patent. A damper **40** is included in the inlet of conduit **30** to facilitate selective blockage of the exhaust gas flow path. The '709 patent does not disclose a second fluid conduit for fluids traveling from the region about the spindle and the wafer support. Instead, the heat regulating system (shown at FIG. 3 of the '709 patent) remotely heats up or cools down the exhaust air flowing through conduit **30**. As such, the '709 patent does not disclose the heat exchange interaction of the exhaust gas flow path traveling through conduit **30** with another fluid in the vicinity of the spindle.

The device disclosed in the '127 patent includes temperature-control measures in the form of conduit **35** and **23**, respectively embedded into a flange **31b** and plate **20** upon which a semiconductor wafer **W** rests. Notwithstanding the Examiner's assertion at the bottom of page 4 and the top of page 5 that heat exchange occurs with fluid in a conduit "all around", there is no evidence that the '127 patent teaches or suggests that a fluid conduit be placed about the spindle

31a to effect a heat exchange relationship with exhaust gas flowing past the spindle. In fact, the only discussion in the '127 patent of conduit used to transport heat exchange fluid is made in conjunction with the aforementioned flange **31b** (described at column 5, lines 17 through 29) and plate **20** (described at column 4, lines 47 through 51), as well as the resist supply nozzle **30** (described at column 5, lines 30 through 41). None of the heat exchange configurations depicted in the '127 patent contemplate a fluid conduit in heat exchange relationship with an exhaust gas in the region about the spindle for the purpose of cooling the exhaust gas. As such, the device of the '127 patent does nothing to rectify the deficiencies of the '709 patent.

"To establish a *prima facie* case of obviousness, three basic criteria must be met." MPEP 2142. Among these is the bedrock principle that all claim limitations should be taught or suggested. MPEP 2143.03. "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Miller*, 169 USPQ 597, 600 ((CCPA 1971), quoting *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970)). Insofar as the Examiner has not pointed to a single instance in the cited references discussing the claimed requirement that the heat regulating element is disposed about the spindle between the flange and wafer support and that it facilitate an exchange of heat between an exhaust gas flowing past the spindle and fluid flowing through a conduit disposed in the heat regulating element, the accompanying rejection is defective. The Examiner's blanket statement about heat exchange occurring with fluid in a conduit "all around" shows neither that there is fluid flow through a conduit disposed in the heat regulating element nor a heat exchange relationship between the two flowing fluids in such a device. Accordingly, by force of logic, the present rejection falls short of the requirement of MPEP 2143.03, and on this requirement alone the Examiner has failed to make out a *prima facie* case for obviousness.

There exists at least one other basis for the inappropriateness of the present rejection, as also among the requirements for a *prima facie* case is that there must be some motivation to combine the references. MPEP 2143.01. The mere fact that the system may be modified as suggested by the Examiner does not render the modification obvious absent a suggestion in the prior art of the desirability of such modification. *In re Fritch*, 972 F.2d 1260; 23 USPQ2d 1780 (Fed. Cir. 1992). In the present case, neither of the teachings of the '709 or '127 patents, taken

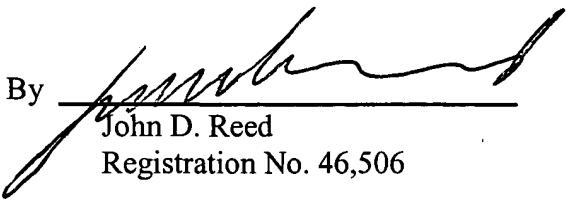
alone or together, even remotely suggest the possibility of having the aforementioned heat exchange relationship between the two fluids, nor could they expect to, as the '709 patent is silent as to using a heat exchange fluid, and the '127 patent limits the use of such fluid to the heat regulating flange, remaining silent as to any applicability of a heat exchange relationship between the exhaust gas and a cooling fluid in the vicinity of the spindle. Accordingly, the Applicants respectfully submit that having failed to satisfy at least two prongs of the tripartite test for obviousness, the Examiner is prevented from asserting that the claims are unpatentable over the art of record.

Based on this significant difference in configuration, the Applicants respectfully submit that the rejection of independent claim 36 cannot be maintained. Moreover, claims 39 through 42 that depend from claim 36 are also patentably distinct over the teachings of the '709 and '127 patents, as they place additional limitations on the independent claim. Since new independent claim 44, like claim 36, recites features neither taught nor suggested by the '709 and '127 patents, the Applicants submit that it too (as well as the claims that depend therefrom) is patentable over the art of record. Accordingly, the Applicant submits that claims 36 and 39 through 46 of the application are now in condition for allowance.

The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,
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